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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/820,636	04/08/2004	Sridhar Ranganathan	17,872	8821
7590	05/03/2005		EXAMINER	
Pauley Petersen & Erickson Suite 365 2800 West Higgins Road Hoffman Estates, IL 60195			GIBSON, KESHIA L	
			ART UNIT	PAPER NUMBER
			3761	

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/820,636	Applicant(s) RANGANATHAN ET AL.	
	Examiner Keshia Gibson	Art Unit 3761	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-14, 17-20 and 24-40 is/are rejected.
- 7) ☒ Claim(s) 9, 15, 16 and 21-23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>6/11 & 7/27/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 1, 17 and 30 are objected to because of the following informalities: In Claims 1, 17 and 30, a part of these claims states "the absorbent structure expands... and increases concavity toward the first surface." From this current language of claims, the first surface is concave toward the absorbent structure. Since the absorbent structure comprises the first surface, the claims essentially read that the absorbent structure is concave toward itself. Concavity is dependent on a reference point; something that is concave from one viewpoint may be convex from another. Although it is possible 1) for an element to be concave or 2) for part of an element to be concave toward another part of the same element, it is not possible for an element to be concave **toward** itself. Thus, the language "the absorbent structure expands... and increases concavity toward the first surface, is considered indefinite. For purposes of this Office Action, the examiner has interpreted the claims to mean that the second surface arcs toward the first surface—regardless of whether this results in the absorbent structure being concave or convex in shape. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-7, 10-11, and 13-14 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Gertzman et al. (US 5,460,621).

In regard to Claim 1, Gertzman et al. disclose an absorbent structure 10 comprising a first surface 16 and a second surface 14. The first surface 16 expands to a lesser extent than the second surface 14; and, the second surface 14 arcs towards the first surface 16 (Fig. 2; column 4, lines 46-65; column 3, lines 30-40). The properties of the materials result in the structure having an overall concave shape in the presence of fluid (Fig. 2; column 4, lines 46-65; column 3, lines 30-40). Gertzman et al. are silent as to the fluid intake rate of the absorbent structure. However, Gertzman et al. do disclose that the structure comprises layered sponges (or foams), which allow for high absorptive properties and immediate wicking (column 3, lines 21-29; column 4, lines 1-24). Thus, the structure disclosed by Gertzman et al. has a similar structure, is made from similar materials, and has a function similar to those of the claimed invention. When the structure recited in the reference is substantially identical to that of the claims of the instant invention, claimed properties or functions presumed to be inherent (MPEP 2112-2112.01). A prima facie case of either anticipation or obviousness has been established

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when the reference discloses all the limitations of a claim (in this case, an absorbent structure having a first surface that expands to a lesser extent than a second surface in the presence of liquid) except for a property or function (in the present case, a fluid intake rate of about 0.5 cubic centimeter per second or greater) and the examiner can not determine whether or not the reference inherently possesses properties that anticipate or render obvious the claimed invention but has a basis for shifting the burden of proof.

In regard to Claim 2, the first 16 and second 14 surfaces are secured together so as to form a one-layer composite (column 4, lines 8-12). Thus, the absorbent structure 10 comprises a single layer of absorbent material.

In regard to Claim 3, the absorbent structure 10 comprises sponges (equivalent to foams) made from polyvinyl acetal polymers by methods described in US 4,098,728 (issued to Rosenblatt) (column 4, lines 12-15). In US, 4,098,728, Rosenblatt discloses a method for making a sponge by reacting a polymer (polyvinyl alcohol) in an aqueous solution having air bubbles dispersed within the solution (column 4, lines 40-53). As defined by Merriam-Webster dictionary, foam is "a material in a lightweight cellular form resulting from introduction of gas bubbles during manufacture." This supports the examiner's earlier reference to the sponges being equivalent to foams. Rosenblatt further discloses that the frothy mass produced by the reaction is then cured in a mold at elevated temperatures (column 4, lines 62-64). As supported by the On-Line Medical Dictionary (<http://cancerweb.ncl.ac.uk/omd/>), a thermoset is "a classification of materials

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that become hardened or cured by the application of heat." Thus, Gertzman et al. disclose that the absorbent structure 10 comprises thermoset foam.

In regard to Claim 4, the first surface 16 is a surface of a first layer 16 and the second surface 14 is a surface of a second layer 14. The surfaces of the layers 16, 14 are bonded to each other (column 4, lines 8-12). As discussed for Claim 1, the first surface 16 expands to a lesser extent than the second surface 14, resulting in the absorbent structure having a concave shape when wet (Fig. 2; column 4, lines 46-65; column 3, lines 30-40).

In regard to Claims 5-6, as discussed for Claim 3, Gertzman et al. disclose that both layers comprise thermoset foam (column 4, lines 12-15).

In regard to Claim 7, in Fig. A below, the structure 10 of Gertzman et al. is marked up based on examiner's understanding of "subtended angle." As can be seen in Fig. A, the absorbent structure 10, has a subtended angle of about 180 degree or less.

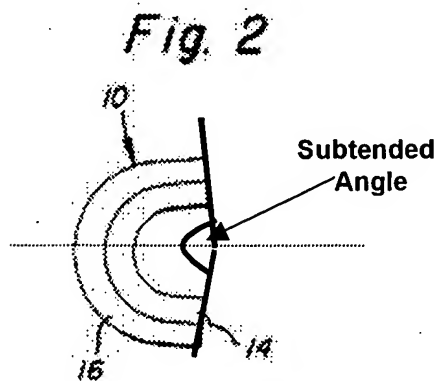


Fig. A: Examiner's markup of Gertzman's Fig. 2 to identify subtended angle.

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In regard to Claim 10, Gertzman et al. disclose that the any or all layers of the absorbent structure 10 may be fully or selectively, mechanically compressed so as to delay the volumetric expansion of one layer in relation to the other (column 5, lines 7-19). As discussed for Claim 1, Gertzman et al. disclose that the first surface 16 expands to a lesser extent than the second surface 14. Thus, Gertzman teaches that the first surface 16 may be treated to expand less in the presence of liquid relative to that of the second surface 14.

In regard to Claim 11, as discussed in Claim 10, Gertzman et al. disclose that the any or all layers of the absorbent structure 10 may be fully or selectively mechanically compressed (column 5, lines 7-19). Mechanical compression has been considered equivalent to mechanical teasing.

In regard to Claim 13, as discussed for Claim 10, a part of either layer 14, 16 may be mechanically compressed to reduce expansion (column 5, lines 7-19).

In regard to Claim 14, as discussed in Claim 10, Gertzman et al. disclose that the any or all layers of the absorbent structure 10 may be fully or selectively mechanically compressed (column 5, lines 7-19). Mechanical compression has been considered equivalent to densification.

5. Claims 1-6, 8, 12-14, and 30-40 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Olsen et al. (US 5,591,150).

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In regard to Claim 1, Olsen et al. disclose an absorbent structure/article 20 comprising a topsheet 38, backsheet 40, absorbent core 42, and an insert 44; the absorbent core 42 and the insert 44 are disposed between the topsheet 38 and backsheet 40 (column 6, lines 43-53). Olsen et al. further disclose that insert 44 may be placed above the absorbent core (as opposed to being placed below the core as previously depicted in Fig. 4) (column 12, lines 10-13; column 25, lines 17-20). Hereafter, any references to "Fig. 4-inversed" will be done with the understanding that the absorbent core 42 and the insert 44 have been interchanged in accordance to with such an arrangement. The insert 44 is considered analogous to a first surface and the absorbent core 42 is considered analogous to a second surface. The first surface 44 may expand to a lesser extent than the second surface 42 (column 25, lines 17-32). The second surface 42 arcs towards the first surface 44 (Fig. 4- inversed; column 10, lines 40-65). The properties of the materials result in the structure having an overall concave shape (in relation to the garment-facing surface of the article) in the presence of fluid (Fig. 4- inversed; column 10, lines 40-65).

Olsen et al. are silent as to the fluid intake rate of the absorbent structure. However, Olsen et al. do disclose that first and second layers 44, 42 comprise materials similar to those set forth by the claimed invention (first layer: column 16, line 44-column 17, line 32; second layer: column 8, line 27- column 9, line 26). Furthermore, the article 20 is designed to absorb bodily fluids (column 5, lines 37-62). When the structure recited in the reference is substantially identical to that of the claims of the instant invention, claimed properties or functions presumed to be inherent (MPEP 2112-2112.01). A prima

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facie case of either anticipation or obviousness has been established when the reference discloses all the limitations of a claim (in this case, an absorbent structure having a first surface that expands to a lesser extent than a second surface in the presence of liquid) except for a property or function (in the present case, a fluid intake rate of about 0.5 cubic centimeter per second or greater) and the examiner can not determine whether or not the reference inherently possesses properties that anticipate or render obvious the claimed invention but has a basis for shifting the burden of proof.

In regard to Claim 2, Olsen et al. disclose that the first 44 and second 42 layers may be formed integrally (column 12, lines 9-13; column 18, lines 7-11). This would result in a single layer of absorbent material.

In regard to Claim 3, suitable materials for the first 44 and second 46 surfaces include meltblown webs, synthetic foams, cellulose wadding, absorbent foams, superabsorbent polymers, and combinations thereof (column 6, line 44-column 17, line 32; column 8, line 27-column 9, line 26).

In regard to Claim 4, Olsen et al. disclose that the layers of the article 20 may be affixed (bonded) to each other (column 22, line 60-column 23, line 29). As discussed for Claim 1, the first surface 44 expands to a lesser extent than the second surface 42, resulting in the absorbent structure having a concave shape when wet (Fig. 4- inversed; column 10, lines 40-65).

In regard to Claim 5, suitable materials for the first surface 44 include meltblown webs, airlaid web, and synthetic foams (column 6, line 44-column 17, line 32).

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In regard to Claim 6, suitable materials for the second surface 42 include cellulose wadding, absorbent foams, superabsorbent polymers, and combinations thereof (column 8, line 27-column 9, line 26).

In regard to Claim 8, Olsen et al. disclose that the radius of curvature is greater than the central height, which is less than 20mm; and further disclose that the radius of curvature is preferably about 24mm (column 12, lines 52-63). Thus, the absorbent structure 20 has a radius of curvature of about 38cm or less in the presence of a liquid.

In regard to Claim 12, the first surface 44 can have slits (column 25, lines 48-52). Thus at least one of the surfaces 42, 44 comprises at least one slit capable of control shaping.

In regard to Claim 13, Olsen et al. disclose that the first surface 44 may comprise a selective stiffener (a portion having regions of different stiffnesses) to affect bending (or expansion) of the article (column 21, line 65-column 22, line 39). Inherently, increased stiffness results in reduced extensibility. Thus, at least one of the first and second surfaces 46, 44 comprises at least one region of reduced expansion.

In regard to Claim 14, Olsen discloses that the stiffening is done by heat treatment (column 22, lines 29-31).

In regard to Claim 16, Olsen discloses that the article 20 is to have a caliper (thickness) of less than 3 mm (column 6, lines 29-42).

In regard to Claim 30, as discussed for Claim 1, Olsen et al. disclose an absorbent structure 20 comprising a topsheet 38, backsheet 40, absorbent core 42, and an insert 44; the absorbent core 42 and the insert 44 are disposed between the topsheet 38 and

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backsheet 40 (Fig. 4-inversed; column 6, lines 43-53; column 12, lines 10-13; column 25, lines 17-20). The insert 44 is considered analogous to a first surface and the absorbent core 42 is considered analogous to a second surface. Again, the first surface 44 expands to a lesser extent than the second surface 42, the second surface 42 arcs towards the first surface, and the structure has an overall concave shape (Fig. 4-inversed; column 10, lines 40-65; column 25, lines 17-32). Although, Olsen et al. are silent as to the fluid intake rate of the absorbent structure, they do disclose that first and second layers 44, 42 of the structure 20 comprises materials similar to those set forth by the claimed invention. When the structure recited in the reference is substantially identical to that of the claims of the instant invention, claimed properties or functions presumed to be inherent (MPEP 2112-2112.01). A prima facie case of either anticipation or obviousness has been established when the reference discloses all the limitations of a claim (in this case, an absorbent structure having a first surface that expands to a lesser extent than a second surface in the presence of liquid) except for a property or function (in the present case, a fluid intake rate of about 0.5 cubic centimeter per second or greater) and the examiner can not determine whether or not the reference inherently possesses properties that anticipate or render obvious the claimed invention but has a basis for shifting the burden of proof.

In regard to Claim 31, as discussed for Claim 2, Olsen et al. disclose that the first 44 and second 42 layers may be formed integrally (column 12, lines 9-13; column 18, lines 7-11). This would result in a single layer of absorbent material.

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In regard to Claim 32, as discussed for Claim 3, suitable materials for the first 44 and second 46 surfaces include meltblown webs, synthetic foams, cellulose wadding, absorbent foams, superabsorbent polymers, and combinations thereof (column 6, line 44-column 17, line 32; column 8, line 27-column 9, line 26).

In regard to Claim 33, as discussed for Claim 4, Olsen et al. disclose that the layers of the article 20 may be affixed (bonded) to each other (column 22, line 60-column 23, line 29). Again, as discussed for Claim 1, the first surface 44 expands to a lesser extent than the second surface 42, resulting in the absorbent structure having a concave shape when wet (Fig. 4- inversed; column 10, lines 40-65).

In regard to Claim 34, as discussed for Claim 5, suitable materials for the first surface 44 include meltblown webs, airlaid web, and synthetic foams (column 6, line 44-column 17, line 32).

In regard to Claim 35, as discussed for Claim 6, suitable materials for the second surface 42 include cellulose wadding, absorbent foams, superabsorbent polymers, and combinations thereof (column 8, line 27-column 9, line 26).

In regard to Claim 36, as discussed for Claim 13, Olsen et al. disclose that the first surface may comprise a selective stiffener to affect bending of the article (column 21, line 65-column 22, line 39). Since, increased stiffness inherently results in reduced extensibility, at least one of the first and second surfaces comprises at least one region of reduced expansion.

In regard to Claim 37, as discussed for Claim 14, Olsen discloses that the stiffening is done by heat treatment (column 22, lines 29-31).

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In regard to Claim 38, as discussed for Claim 12, the first surface 44 can have slits, which are capable of providing control shaping (column 25, lines 48-52).

In regard to Claim 39, the article 20 relates to absorbent articles such as sanitary napkins, pantliners, and incontinence pads, all of which are personal care absorbent articles (abstract; column 1, lines 39-47).

In regard to Claim 40, as discussed for Claim 39, the article 20 relates to absorbent articles such as sanitary napkins, pantliners, and incontinence pads (abstract; column 1, lines 39-47).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 8, 17-19, 24-25 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gertzman et al.

In regard to Claim 8, Gertzman et al. disclose the claimed invention except for the absorbent structure having a radius of curvature of about 38 centimeters or less in the presence of a liquid. However, radius of curvature is a variable affected by the differential expansion of the two layers. Thus, it would have been obvious to one of ordinary skill in the art to provide the absorbent structure of Gertzman et al. with a

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radius of curvature of about 38 centimeters or less in the presence of a liquid, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In regard to Claim 17, as discussed for Claim 1, Gertzman et al. teach an absorbent structure 10 having a first layer 16 that expands to a lesser extent than a second surface 14, resulting in the structure 10 having an overall concave shape; Gertzman et al. may or may not teach that the structure has a fluid intake rate of about 0.5 centimeters per second or greater (Fig. 2; column 4, lines 46-65; column 4, lines 1-24; column 3, lines 21-40). Thus, Gertzman et al. teach the claimed invention except for the second layer expanding at least 20% in the presence of liquid.

However, it would have been obvious to one of ordinary skill in the art to have the second layer of the absorbent structure of Gertzman et al. expand at least 20% in the presence of liquid, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

In regard to Claim 18, as discussed for Claim 7, the absorbent structure 10 has a subtended angle of about 180 degree or less (again, Fig. A above).

In regard to Claim 19, as discussed for Claim 8, Gertzman et al. do not disclose that the absorbent structure has a radius of curvature of about 38 centimeters or less in the presence of a liquid. However, it would have been obvious to one of ordinary skill in the art to provide the absorbent structure of Gertzman et al. with a radius of curvature of about 38 centimeters or less in the presence of a liquid, since it has been held that

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discovering an optimum value of a result effective variable involves only routine skill in the art.

In regard to Claim 24-25, as discussed for Claims 5-6, Gertzman et al. disclose that both layers comprise thermoset foam (column 4, lines 12-15).

In regard to Claim 28, as discussed for Claim 13, a part of either layer 14, 16 may be mechanically compressed to reduced expansion (column 5, lines 7-19).

In regard to Claim 29, as discussed for Claim 14, Gertzman et al. disclose that the any or all layers of the absorbent structure 10 may be fully or selectively mechanically compressed (column 5, lines 7-19). Mechanical compression has been considered equivalent to densification.

8. Claims 17, 19-20, and 24-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsen et al.

In regard to Claim 17, as discussed for Claim 1, Olsen et al. disclose an absorbent structure 20 comprising a topsheet 38, backsheet 40, absorbent core 42, and an insert 44; the absorbent core 42 and the insert 44 are disposed between the topsheet 38 and backsheet 40 (Fig. 4-inversed; column 6, lines 43-53; column 12, lines 10-13; column 25, lines 17-20). The insert 44 is considered analogous to a first surface and the absorbent core 42 is considered analogous to a second surface. Again, the first surface 44 expands to a lesser extent than the second surface 42, the second surface 42 arcs towards the first surface, and the structure has an overall concave shape (Fig. 4-inversed; column 10, lines 40-65; column 25, lines 17-32). Olsen et al. may or may not

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teach that the structure has a fluid intake rate of about 0.5 centimeters per second or greater, but they do disclose that first and second layers 44, 42 of the structure 20 comprises materials similar to those set forth by the claimed invention. Thus, Olsen et al. teach the claimed invention except for the second layer expanding at least 20% in the presence of liquid. However, it would have been obvious to one of ordinary skill in the art to have the second layer of the absorbent structure of Gertzman et al. expand at least 20% in the presence of liquid, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

In regard to Claim 19, as discussed for Claim 8, Olsen et al. disclose that the radius of curvature is preferably about 24mm (column 12, lines 52-63). Thus, the absorbent structure 20 has a radius of curvature of about 38cm or less in the presence of a liquid.

In regard to Claim 20, as discussed for Claim 16, Olsen discloses that the article is to have a caliper (thickness) of less than 3 mm (column 6, lines 29-42).

In regard to Claim 24, as discussed for Claim 5, suitable materials for the first surface 44 include meltblown webs, airlaid web, and synthetic foams (column 6, line 44-column 17, line 32).

In regard to Claim 25, as discussed for Claim 6, suitable materials for the second surface 42 include cellulose wadding, absorbent foams, superabsorbent polymers, and combinations thereof (column 8, line 27-column 9, line 26).

In regard to Claim 26, the second layer may comprise a superabsorbent material (column 8, line 27- column 9, line 4).

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In regard to Claim 27, as discussed for Claim 12, the first surface 44 can have slits, which are capable of control shaping (column 25, lines 48-52).

In regard to Claim 28, as discussed for Claim 13, as discussed for Claim 13, Olsen et al. disclose that the first surface may comprise a selective stiffener to affect bending of the article (column 21, line 65-column 22, line 39). Since, increased stiffness inherently results in reduced extensibility, at least one of the first and second surfaces comprises at least one region of reduced expansion.

In regard to Claim 29, as discussed for Claim 14, Olsen discloses that the stiffening is done by heat treatment (column 22, lines 29-31).

Allowable Subject Matter

9. Claims 9, 15-16, and 21-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Van Iten (US 5,350,371), Dabi et al. (US 5,624,421), Lindquist et al. (US 5,454,802), and Hansson et al. (US 6,198,019 B1)..

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keshia Gibson whose telephone number is (571) 272-

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7136. The examiner can normally be reached on M-F 8:30 a.m. - 6 p.m., out of the office every other Friday.

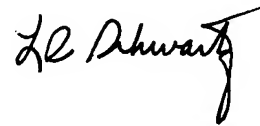
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Schwartz can be reached on (571) 272-4390. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Keshia Gibson
Examiner, Art Unit 3761

klg 4/28/05



Larry I. Schwartz
Supervisory Patent Examiner
Group 3700